MYCOTAXON

Volume 109, pp. 337–340 *July–September 2009*

Hypotrachyna carchiensis, a new species in the *Parmeliaceae* from Ecuador

Alba Yánez-Ayabaca & Sionara Eliasaro

albayanez8@gmail.com
Depto. Botânica, Biológicas, Universidade Federal do Paraná
Cx. P. 19031, 81531-970, Curitiba, PR – Brazil

Abstract — *Hypotrachyna carchiensis* is described as a new species in the *Parmeliaceae*. It is thus far known only from Carchi Province in Ecuador.

Key words — lichens, paramo

Introduction

Hypotrachyna (Vain.) Hale is a cosmopolitan genus of approximately 165 species (Nash et al. 2002). The species of this genus are characterized by a thallus with sublinear, subirregular to linear, narrow lobes, truncated to subtruncate or more rarely subrotund apices, dichotomously branched rhizines, laminal imperforate apothecia, hyaline oval-ellipsoidal spores, and bifusiform conidia (Elix 1994). It has its highest diversity in tropical America and tropical Asia (Divakar et al. 2006). *Hypotrachyna* is mainly a genus of higher (between 1300 and 2400 m) elevation throughout its range in the tropics (Hale 1975, Divakar et al. 2006).

The genus is well represented in the *lichen flora* of the Northern *Andes* of Ecuador where about 33 species have been reported (Yánez-Ayabaca 2009).

During a survey of the *Parmeliaceae* in Carchi Province in the Andean region of Ecuador, a new *Hypotrachyna* species was found, which is formally described below.

Materials and methods

The new species was collected by the first author at the El Angel Ecological Reserve, located in Carchi, the northernmost province of Ecuador. This ecological reserve, which is dominated by paramo vegetation rich in "frailejones" (*Espeletia pycnophylla [Asteraceae]*), includes also a remnant of *Polylepis* forest. The specimens were examined with a dissecting microscope for morphological characterization. Lichen substances were identified by thin

layer chromatography (Culberson & Ammann 1979, Elix & Ernst-Russell 1993) and by comparison with samples with known secondary metabolites. The chromatograms were developed in solvent system C.

Taxonomic description

Hypotrachyna carchiensis Yánez-Ayabaca & Eliasaro, **sp. nov.** Fig. 1

MycoBank MB 513114

Thallus similis Hypotrachyna munduae *sed cum lobis angustioribus, cum isidiis laminalibus et cum acido fumarprotocetrarico in medulla.*

Type: **ECUADOR. Carchi: El Angel.** reserva ecológica el angel, paramo of "frailejones", 00°40'40.2" N, 77°52'35.00"W, 3739 m, 25/12/2007, A. Yánez-Ayabaca 1453b (**Holotype** QAP; **isotype** UPCB).

Etymology: From Carchi, the place of origin of the type material.

Thallus 4.5 cm wide, membranaceous, corticolous, loosely adnate, yellow-green. Lobes (0.6–)1.0–2.5 mm wide, 6–2 mm long, sublinear to subirregular dichotomously branched, flat to subcanaliculate, separate to slightly overlapping, apices truncate to acute, margins smooth to laterally slightly crenate. Upper surface smooth to rugose, continuous to rarely fissured in some parts, shiny, emaculate, moderately isidiate. Isidia laminal, simple, short-cylindrical, 0.1–0.3 mm long., brown-tipped, eciliate. Medulla white. Lower surface black, shiny, slightly rugose, moderately rhizinate; margin brown, smooth to slightly rugose, 0.1–0.3 mm wide, naked to partially rhizinate; rhizines black, densely dichotomously branched, 0.2–1.3 mm long, scattered but sometimes subapically grouped. Apothecia and pycnidia absent.

Chemistry: cortex K–, UV–: usnic acid and atranorin (trace); medulla: K+ yellow brown, C–, KC+ brown yellow, UV–: fumarprotocetraric acid.

Additional specimens examined – **ECUADOR. Carchi: El Angel.** reserva ecologica el angel, paramo of "frailejones", 00°40'40.2"N, 77°52'35.00"W, 3739 m, 25/12/2007, A. Yánez-Ayabaca 1467, 1468 (QAP, UPCB).

Comments – *Hypotrachyna carchiensis* is characterized by its yellow-green thallus with the laminal isidia and the presence of fumarprotocetraric acid in the medulla. It is closely related to *H. munduae* Louwhoff & Elix, which can be distinguished by the wider lobes (1.5–4.5 mm wide), the subterminal isidia, and by the additional production of succinprotocetraric acid (minor), quaesitic acid (minor), protocetraric acid (minor/trace), salazinic acid 9α-methyl ether (trace), and ± salazinic acid (trace) in the medulla (Louwhoff & Elix 2002).

Hypotrachyna neoflavida Hale & López-Fig., a saxicolous species, is morphologically very similar to *H. carchiensis* but can be separated by the presence of protocetraric acid in the medulla and by a densely rhizinated lower surface.

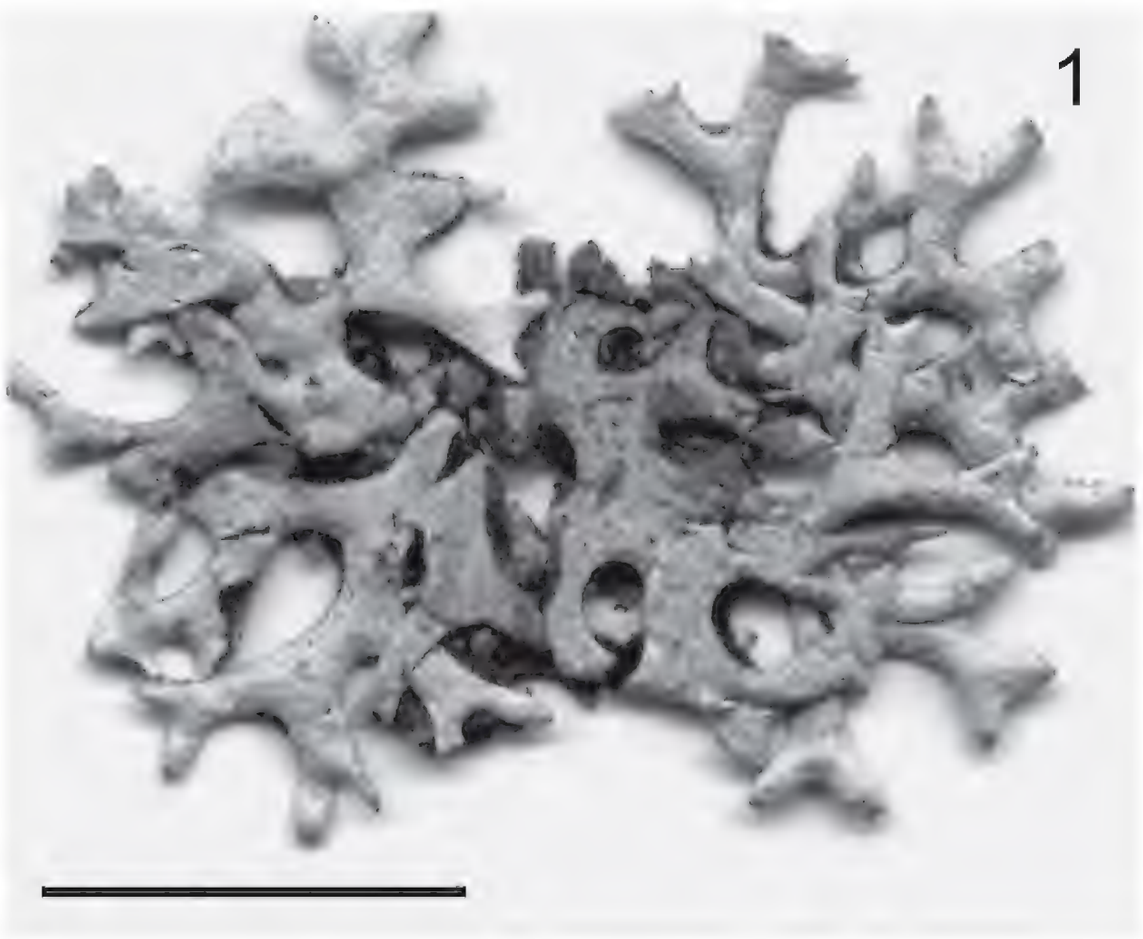

FIGURE 1. *Hypotrachyna carchiensis* (holotype QAP) Bars = 10 mm.

Acknowledgements

The authors wish to thank Harrie J. Sipman and Frank Bungartz for critical revision of the manuscript and Prof. Nasser K. Hammad for checking the Latin diagnosis. We also thank the Ecuadorian *Ministry of the Environment* for the collection permits, the Postgraduate Program in Botany of the Universidade Federal do Paraná (UFPR), and the *Brazilian* National Research Council (CNPq) for supporting a Master's thesis scholarship for the first author.

Literature cited

Culberson CF, Ammann K. 1979. Standardmethode zur Dünnschicht-chromatographie von Flechtensubstanzen. Herzogia 5: 1–24.

Divakar PK, Crespo A, Blanco O, Lumbsch HT. 2006. Phylogenetic significance of morphological characters in the tropical *Hypotrachyna* clade of parmelioid lichens (*Parmeliaceae*, *Ascomycota*). Molecular Phylogenetics and Evolution. 44: 448–452.

Elix JA, Ernst-Russell KD. 1993. A catalogue of standardized thin layer chromatographic data and biosynthetic relationships for lichen substances. 2nd edition, Australian National University, Canberra.

Elix JA. 1994. *Hypotrachyna*, Flora of Australia 55: 49–59.

Hale ME. 1975. A revision of lichen genus *Hypotrachyna* (*Parmeliaceae*) in Tropical America. Smithsonian Contributions to Botany 32: 1–73.

Louwhoff, SH, Elix JA. 2002. *Hypotrachyna* (*Parmeliaceae*) and allied genera in Papua New Guinea. Bibliotheca Lichenologica 81: 1–149.

Nash III TH, Sipman H, Elix JA. 2002. *Hypotrachyna*. In: Nash III TH, Ryan BD, Gries C, Bungartz F (Eds). Lichen Flora of the Greater Sonoran Desert Region I: 238–251.

Yánez-Ayabaca, A. 2009. Os gêneros *Hypotrachyna* e *Everniastrum* (*Parmeliaceae*, *Ascomycota* Liquenizados) nas províncias de Carchi e Imbabura na região Andina do Equador. Dissertação (mestrado). Universidade Federal do Paraná. Paraná. 128 p. Available at http://dspace.c3sl.ufpr.br/dspace/